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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,001	02/25/2004	Florian Tauser	TAUSER ET AL. - 2	3928

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EXAMINER	
DIACOU, ARI M	

ART UNIT	PAPER NUMBER
3663	

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/787,001	TAUSER ET AL.	
	Examiner	Art Unit	
	Ari M. Diacou	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: the applicant uses the term "microstructured photonic fibers" presumably to refer to a set of structures that include *Bragg fibers* and *photonic crystal fibers*. Currently, these terms do not appear in the specification, but are helpful for future searching, breadth, and understanding of the subject matter.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Soliton is a noun that describes a pulse that has no net dispersion, it is an effect, not a cause. What the applicant means by solitonic effects is neither clear nor disclosed.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Galvanauskas et al. (USP No. 5499134).

- Regarding claim 1, as best understood by the examiner, Galvanauskas discloses a device for generating tunable light pulses comprising:
  - (a) a pulse laser light source for producing femtosecond light pulses having an optical spectrum; [Fig. 6, #10a] [Col. 5, lines 36-63]
  - (b) a non-linear optical fiber for modifying the optical spectrum of the femtosecond light pulses, [Fig. 6, #18b-4] [Inherent, all optical fiber is non-linear]
  - said optical fiber taking advantage of solitonic effects; and [As best understood by the examiner, chirping a signal to optimize it for propagation through a dispersive media is in the category of what the applicant would call a solitonic effect]
  - (c) an optical compressor preceding said non-linear optical fiber. [Fig. 6, #1b] [Col. 4, lines 24-36]

- Regarding claim 3, Galvanauskas discloses the device according to claim 1, wherein said optical compressor is adjustable to permit changing the chirp of the light pulses coupled into said non-linear optical fiber. [Inherent, when any optical prototype is developed, the positions of its components are adjustable unless the inventor creates a product with immovable pieces for increased marketability]

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galvanauskas as applied to claim 1 above. Galvanauskas discloses the invention with all the limitations of claim 1, but fails to disclose a system with seed pulses of energy greater than 1 nJ. He does however teach that amplifiers could be modified with lasers with pulses in excess of 1μm [Col. 1, lines 24-39]. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to use higher seed pulse energies, for the advantage of greater output power.

10. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galvanauskas as applied to claim 1 above in view of Broeng et al. (USP No. 2002/0131737) and further in view of Knight's *Photonic Crystal Fibers*. Galvanauskas discloses the invention with all the limitations of claim 1, but fails to disclose a polarization maintaining fiber, use of a microstructured photonic fiber, or the size of the fiber. Broeng teaches a polarization maintaining microstructured photonic fiber [Fig. 1] with a diameter of less than 5 micrometers [¶ 0028-0046]. Knight teaches that photonic crystals may be used to replace normal optical fiber in any situation where they are better than optical fiber [p847, col 2, lines 3-5], such as use in high power applications [p849, col 2, 5th line from bottom] Therefore, it would have been obvious to one skilled in

the art (e.g. an optical engineer) at the time the invention was made, to use a microstructured fiber from the disclosure of Broeng to route the high-power pulses resulting from the amplifier of Galvanauskas, for the advantage of not melting.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galvanauskas as applied to claim 1 above. Further, because of the exponential dependence of attenuation of a signal on distance the signal has propagated, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the length of the fiber as small as possible, to achieve a desired result. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galvanauskas as applied to claim 1 above. Galvanauskas discloses the invention with all the limitations of claim 1, but fails to disclose a second compressor. Galvanauskas does however teach that while pulse stretchers are not necessary, using compressors alone can achive amplification of a signal [Col. 1, lines 50-59]. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to include a second compressor, for the advantage of increased amplification.

13. Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Galvanauskas as applied to claim 1 above, and further in view of Svilans et al. (USP No. 6915030). Galvanauskas discloses the invention with all the limitations of claim 1, but fails to disclose the use of an optical measurement system. Svilans teaches the use of an optical spectrum analyzer for use in monitoring networks of channels [Col. 1, lines 12-53]. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to include one in the design of an optical amplifier, for the advantage of knowing the output spectrum of the optical amplifier.

Conclusion

14. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

15. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

16. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

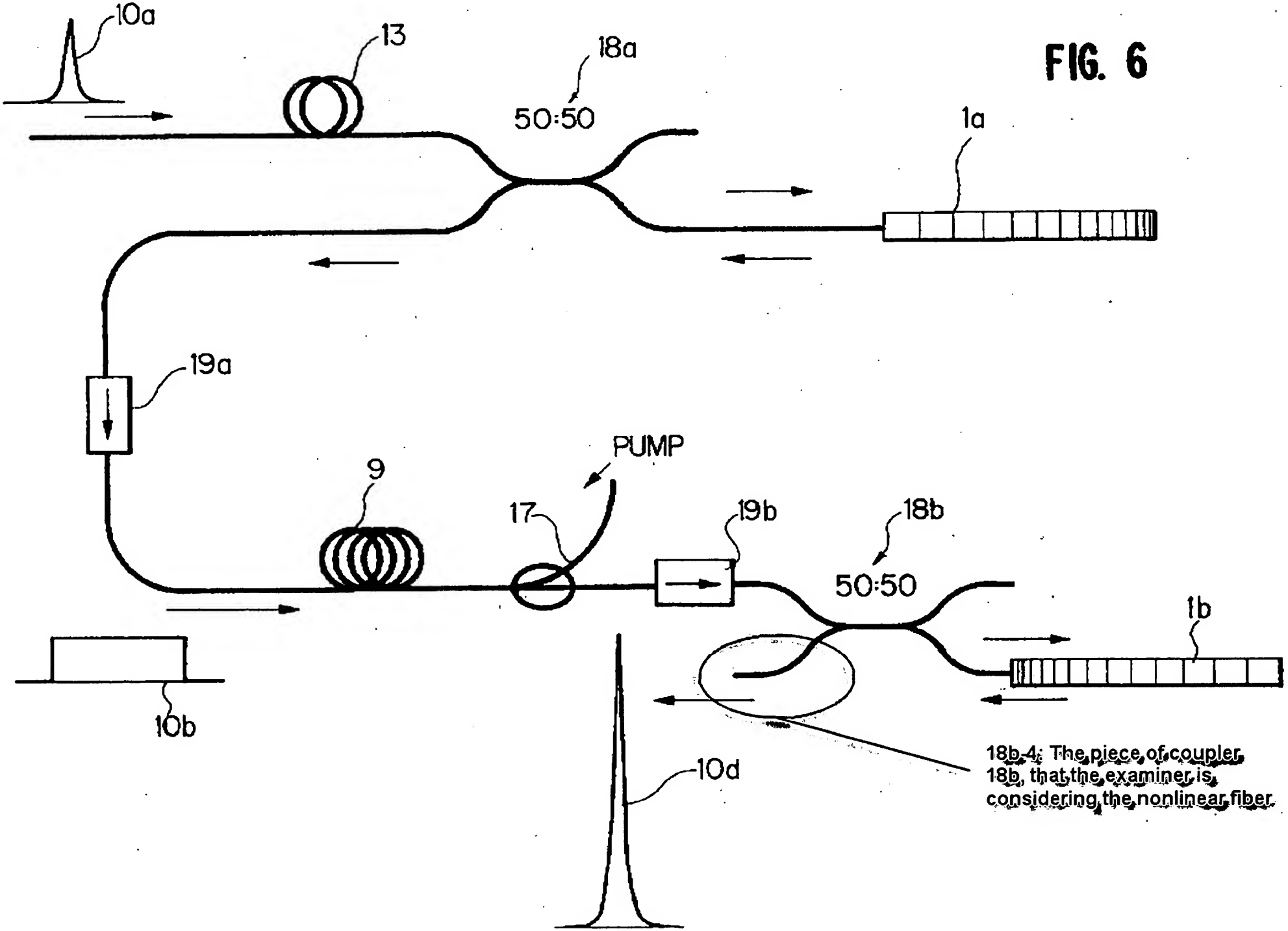
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMD 10/11/2005

JACK KEITH
SUPERVISORY PATENT EXAMINER

FIG. 6


10a
13
18a
50:50
1a
19a
PUMP
9
17
19b
18b
50:50
1b
10b
10d
18b-4: The piece of coupler 18b, that the examiner is considering the nonlinear fiber